

EXECUTIVE SUMMARY

The District of Columbia has one of the largest Central Business Districts in the nation, with disparate activity nodes that include office concentrations, tourist venues, large institutions, universities, entertainment and mixed commercial areas. Yet, there is no single high performance transit link to serve the workers, shoppers, convention attendees and other visitors who travel along the CBD's east-west dimension.

This report summarizes the findings and recommendations of a study that led to a concept plan for a high performance transit link and related pedestrian and traffic operations improvements to the city's central core. The transit link would connect Georgetown to Union Station, as shown in the study area map presented in Figure ES-1.

The transportation study was a joint effort by the District Department of Transportation (DDOT) and the Washington Metropolitan Area Transit Authority (WMATA).

Figure ES-1 – Study Area



CURRENT CONDITIONS

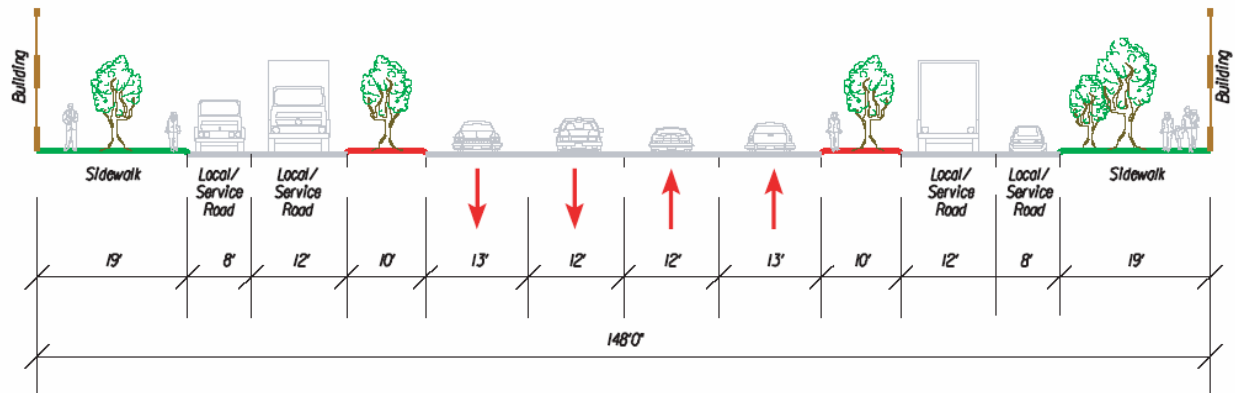
The impetus for this project was the need to reconstruct K Street through Downtown Washington, DC. The current infrastructure of K Street¹ is roughly 30 years old. Pavement and crosswalks have deteriorated and are in poor condition. The corridor's service lanes are an inefficient use of right-of-way that lead to severe traffic congestion and encourage parking violations. The combination of the corridor's geometry, shown in Figure ES-2, and traffic congestion result in significant vehicle-pedestrian conflicts and pedestrian safety issues.

In addition, there is no continuous east-west cross-town transit service connecting Georgetown, Downtown, the new Convention Center and Union Station. Anyone wishing to travel between these destinations must take multiple buses or a combination of bus and Metrorail. Bus service

¹ All streets in the study area are located in the northwest quadrant of the District, with the exception of those around Union Station east of North Capitol Street. Therefore, throughout this report where the NW designation is omitted, it should be understood that the street is located in the northwest quadrant of the District.

is slow and unreliable, with routes and schedules that are difficult to understand, especially for tourists and infrequent riders. Bus stops are inadequate in location, condition, amenities and pedestrian access.

Figure ES-2 – Existing Peak Period K Street Cross-Section



PROJECT GOAL

The goal of the transportation study was to identify a system of transit, roadway and infrastructural enhancements that would improve the movement of people and goods through the District of Columbia's central core. The system would be designed to enhance traffic flow and vehicular safety, provide higher quality transit service, establish needed cross-town transit connections, improve pedestrian safety and access, and facilitate the management of parking and loading zones.

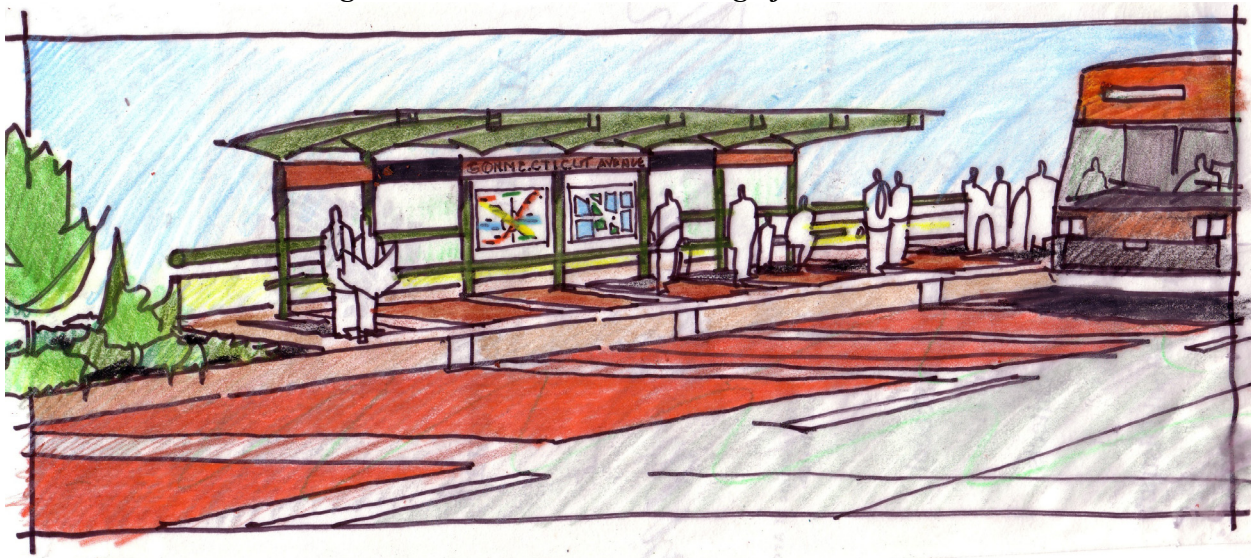
TRANSIT IMPROVEMENTS

To enhance mobility in the study corridor, the Study Team recommends the following transit improvements:

- **Median busway** — Construction of a median busway on K Street between Washington Circle and Mount Vernon Square. The busway would consist of exclusive bus lanes in the two center lanes of K Street, separated by medians from non-bus travel lanes.
- **Curbside bus lanes** — Provision of exclusive curbside bus lanes at the following locations:
 - south side of M Street between Wisconsin Avenue and Pennsylvania Avenue
 - south side of Pennsylvania Avenue between M Street and Washington Circle
 - Massachusetts Avenue between H Street and Union Station
- **New Cross-town bus route** — New Downtown Circulator bus service connecting Georgetown and Union Station. Low floor, high quality buses with multiple-door boarding capabilities are recommended for this route.

- **Bus route re-routing** — Re-routing of existing bus routes of regional significance to make use of the busway.
- **Customer amenities** — Improved customer amenities on buses and at bus stops and bus stations. As shown in Figure ES-3, bus stations would have enhanced passenger information features, including area and regional maps, and real time “next bus” information.
- **Fare collection** — Improved fare collection system (SmarTrip).
- **Pedestrian access** — Better pedestrian access to stops and stations.
- **Bus enhancements** — Signal system improvements that enable buses to operate with traffic signal priority systems.

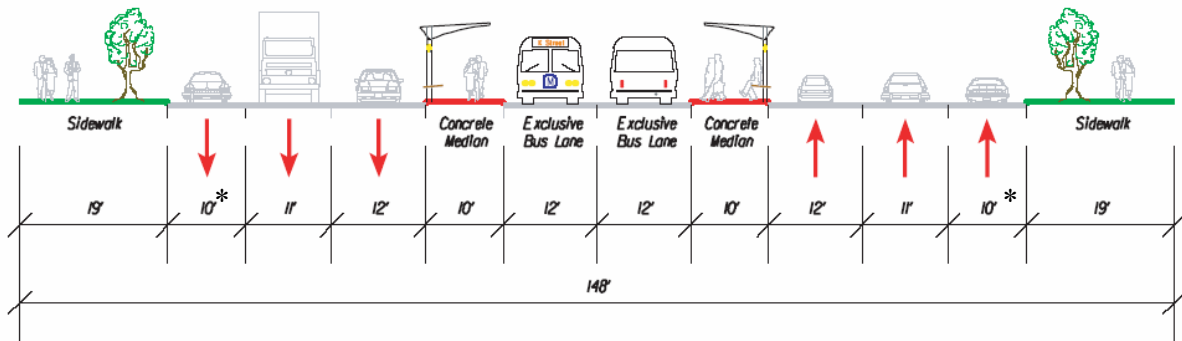
Figure ES-3 – Artist’s Rendering of Bus Station



RECONFIGURED / RECONSTRUCTED K STREET

The Study Team recommends the elimination of the existing K Street service lanes and the provision of an exclusive busway on K Street between Washington Circle and Mt. Vernon Square. This change would improve transit flow, vehicular and pedestrian safety, and traffic management throughout the corridor. It would also allow more efficient use of the available right-of-way on K Street. Figure ES-4 shows a cross-section of the proposed busway; Figure ES-5 shows a computer-generated visualization.

Figure ES-4 – Typical Proposed Cross-Section



* Parking would be allowed during off-peak hours

Figure ES-5 –K Street Busway Computer-Generated Visualization



Also recommended are:

- Replacement of pedestrian crosswalks to improve visibility and pedestrian safety.
- Streetscape improvements, including new medians with plantings, landscaping and distinctive colored pavement treatments for the exclusive bus lanes.
- Curbside management improvements, including changes to parking and delivery zones and enforcement of regulations.

PREFERRED ALTERNATIVE

Based on an evaluation of six options for providing improved mobility through the K Street corridor, the Study Team recommends the preferred alternative with the following characteristics:

- Implementation of an east-west bus route with frequent service – the Downtown Circulator – connecting Union Station to Georgetown.
- Provision of an exclusive busway on K Street between Mount Vernon Square and Washington Circle.
- Provision of exclusive bus lanes on M Street, Pennsylvania Avenue and Massachusetts Avenue.
- Implementation of measures to improve pedestrian and vehicular safety, including turn prohibitions and reconfiguration of medians to provide better refuge for pedestrians.
- Provision of transit signal priority system for the eastern and western sections of the study area. The system would provide or maintain a green phase for bus traffic when sensors detect the presence of a bus.

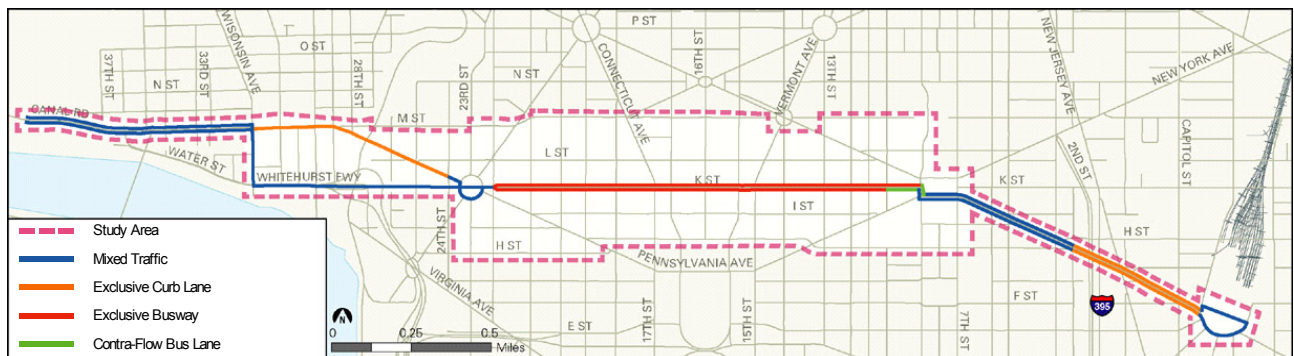
ALIGNMENT

The Downtown Circulator would use the exclusive busway on K Street between Washington Circle and Mt. Vernon Square. As shown in Figure ES-6, exclusive curbside bus lanes¹ are recommended:

- in Georgetown on eastbound M Street between Wisconsin and Pennsylvania Avenues;
- on Pennsylvania Avenue between M Street and 24th Street; and
- in the eastern section of the study area – in both directions of Massachusetts Avenue between H Street and Union Station

¹ Exclusive curbside bus lanes may also be used by right turning non-bus vehicles.

Figure ES-6 – Preferred Alternative Alignment



TRANSIT SERVICE PLAN

To make best use of the exclusive busway facility on K Street, the Study Team recommends the implementation of a revised transit service plan. This will entail shifting routes traversing short sections of K Street to parallel streets to minimize turns from the K Street busway. Routes from parallel streets traversing long east-west distances will be moved to the busway.

Only the Downtown Circulator and other routes of regional significance will use the K Street busway. The busway will serve between 50 and 65 peak direction buses during peak hours. Bus stops will be located approximately every two blocks throughout the central core.

The Downtown Circulator will be the principal mode of transit on the K Street busway. It will provide cross-town, high quality, high performance service connecting Georgetown, downtown, the Convention Center and Union Station. The Circulator will offer high-frequency, all-day operation with special features to maximize efficiency and passenger convenience. Its primary markets are expected to be DC residents, workers, visitors and conventioners, representing an anticipated 13,000 trips per day by 2015.

The recommended routing of the Downtown Circulator is as follows:

Westbound route — The Circulator will start at Union Station and travel on Massachusetts Avenue to Mt. Vernon Square. The portion of this alignment between 1st Street NE and H Street will be on exclusive curbside bus lanes. The Circulator will travel across the south side of Mt. Vernon Square and turn right on 9th Street. It will travel on a contra-flow bus lane on 9th Street and turn left on K Street, continuing to 10th Street, where the K Street busway begins.
















The Circulator will continue westbound on K Street to the end of the busway at Washington Circle, where it will go under Washington Circle and continue onto Lower K Street at 27th Street. It will then turn right onto Wisconsin Avenue and travel to M Street in Georgetown, turning right on M, the starting point of the eastbound return trip. Every third Circulator bus will travel west to Georgetown University via M Street and Canal Road. On the eastbound trip, these buses will return to the intersection of M Street and Wisconsin Avenue using Canal Road and M Street.¹

Eastbound route — From the intersection of Wisconsin Avenue and M Street, the Circulator will travel via exclusive curbside bus lanes on M Street and Pennsylvania Avenue to 24th Street, where the exclusive bus lane ends. The Circulator will pass through Washington Circle to the K Street Service Road, joining the K Street Busway at 21st Street. It will travel the length of the Busway to 9th Street, where it will turn right. The Circulator will then turn left to travel across the south side of Mt. Vernon Square to Massachusetts Avenue, which it will use to return to Union Station. The portion of the alignment on Massachusetts Avenue between H Street and 1st Street NE will be on exclusive curbside bus lanes.

QUALITATIVE EVALUATION

Table ES-1 shows that the preferred alternative compares favorably to a no-build scenario in the following categories: transit ridership impacts, transit reliability, transit system clarity, pedestrian safety, vehicular safety and transit access to adjacent land uses.

Table ES-1 – Qualitative Evaluation

	2015 No-Build	Preferred Alternative
Transit Ridership Impacts		
Transit Reliability		
Transit System Clarity		
Pedestrian Safety		
Vehicular Safety		
Transit Access to Adjacent Land Uses		
 Poor   Very Good		

¹ Because left turns from the University entrance to Canal Road are prohibited between 6:00 and 10:15 AM, Circulator buses during these hours will travel eastbound via Prospect Street and 34th Street rather than via Canal Road.

MEASURES OF EFFECTIVENESS

When compared to a future no-build scenario, the preferred alternative would have the following effects:

- Significantly reduced bus travel times
- Increased person throughput at key locations
- No significantly worse congestion for general traffic
- No reduction in service levels at critical intersections
- No significant effects on total person delay
- \$1.9 million savings in bus subsidies per year
- One-time estimated \$5.5 million capital cost savings due to reduced fleet requirements
- Loss of 24 parking spaces on M Street, 11 on Pennsylvania Avenue and 53 on Massachusetts Avenue
- Loss of two loading spaces on M Street and one loading space on Pennsylvania Avenue

K STREET BUSWAY AT FARRAGUT SQUARE

Implementation of the preferred alternative would require the acquisition of eight feet of right-of-way from Farragut Square, which is owned by the National Park Service (NPS). Without this section of right-of-way, the south side of K Street would be left with a five-foot sidewalk between 17th Street and Connecticut Avenue. It is likely that NPS would need to widen the sidewalk across Farragut Square to maintain the current levels of pedestrian service and safety.

Obtaining this right-of-way would give the K Street busway an exclusive 12-foot lane in each direction between 17th Street and Connecticut Avenue. However, very narrow medians can be provided in this block, so no bus stops are planned. The service plan for the central section calls for placement of a bus stop in each direction of the K Street Busway between Connecticut Avenue and 18th Street.

To improve pedestrian safety, the existing westbound exclusive right turn lane at Connecticut Avenue would be converted into a through-right lane. Right turns from westbound K Street to northbound Connecticut Avenue would be prohibited between 7:00 AM and 7:00 PM.

If it is not possible to obtain the eight-foot strip of Farragut Square, the Study Team recommends a second alternative: Geometric configurations and parking restrictions generally would be the same except at K Street between 16th and 18th Streets. Traveling eastbound on K Street, the roadway cross-section would be shifted to the north between 18th Street and Connecticut Avenue. A six-lane cross-section would be provided between Connecticut Avenue and 17th Street, with one exclusive bus lane in each direction and two non-bus travel lanes in each

direction, separated by medians. Continuing eastbound on K Street, the cross-section would shift back to the south in the block between 17th and 16th Streets.

ALTERNATIVES CONSIDERED

The Study Team evaluated alternative configurations for the K Street Busway on K Street between Mount Vernon Square and Washington Circle, including curbside running, center median and center split configurations, and selected the center median configuration as the most adequate for the corridor. After selecting the center median configuration for the K Street busway between Washington Circle and Mount Vernon Square, the Study Team analyzed the alternatives described below and reached the conclusion that Alternative D was the preferred alternative.

ALTERNATIVE A

- Center median busway between Washington Circle and Mt. Vernon Square.
- No exclusive curbside bus lanes east of Mt. Vernon Square or west of Washington Circle.
- Bus service plan with 60 to 75 peak direction buses per hour in exclusive busway section.
- All-day parking on K Street curb lanes between Washington Circle and Mt. Vernon Square.

ALTERNATIVE B

- Center median busway between Washington Circle and Mt. Vernon Square.
- No exclusive curbside bus lanes east of Mt. Vernon Square or west of Washington Circle.
- Bus service plan with 60 to 75 peak direction buses per hour in exclusive busway section.
- Mid-day / evening / night parking on K Street curb lanes between Washington Circle and Mt. Vernon Square. No parking during peak periods (7:00 – 9:30 AM and 4:00 – 6:30 PM).

ALTERNATIVE C

- Center median busway between Washington Circle and Mt. Vernon Square.
- Exclusive curbside bus lanes east of Mt. Vernon Square and west of Washington Circle.
- Mid-day / evening / night parking on K Street curb lanes between Washington Circle and Mt. Vernon Square.
- No parking during peak periods (7:00 – 9:30 AM and 4:00 – 6:30 PM).

- No parking on south side of M Street between Wisconsin Avenue and Pennsylvania Avenue. No parking on south side of Pennsylvania Avenue between M Street and Washington Circle. No parking on Massachusetts Avenue between H Street and Union Station.
- Bus service plan with 60 to 75 peak direction buses per hour in exclusive busway section.

ALTERNATIVE D (*preferred alternative*)

- Center median busway between Washington Circle and Mt. Vernon Square.
- Exclusive curbside bus lanes east of Mt. Vernon Square and west of Washington Circle.
- Mid-day / evening / night parking on K Street curb lanes between Washington Circle and Mt. Vernon Square.
- No parking during peak periods (7:00 – 9:30 AM and 4:00 – 6:30 PM).
- Bus service plan with 50 to 65 peak direction buses per hour in exclusive busway section.
- Bus stops every two blocks in exclusive busway section.
- No right turns allowed from westbound K Street to northbound Connecticut Avenue between 7:00 AM and 7:00 PM.

ALTERNATIVE E

- Exclusive curbside bus lanes east of Mt. Vernon Square and west of Washington Circle.
- Mid-day / evening / night parking on K Street curb lanes between Washington Circle and Mt. Vernon Square.
- No parking during peak periods (7:00 – 9:30 AM and 4:00 – 6:30 PM).
- No parking on south side of M Street between Wisconsin Avenue and Pennsylvania Avenue. No parking on south side of Pennsylvania Avenue between M Street and Washington Circle. No parking on Massachusetts Avenue between H Street and Union Station.
- Bus service plan with 60 to 75 peak direction buses per hour in exclusive busway section.
- Bus stops every two blocks in exclusive busway section.
- Center median busway between Washington Circle and Mt. Vernon Square, but no exclusive eastbound bus lane between 18th Street and 16th Street.

ALTERNATIVE F (*preferred alternative if Alternative D cannot be implemented*)

- Center median busway between Washington Circle and Mt. Vernon Square.
- Exclusive curbside bus lanes east of Mt. Vernon Square and west of Washington Circle.
- Mid-day / evening / night parking on K Street curb lanes between Washington Circle and Mt. Vernon Square.
- No parking during peak periods (7:00 – 9:30 AM and 4:00 – 6:30 PM).
- Bus service plan with 50 to 65 peak direction buses per hour in exclusive busway section.
- No right turns allowed from westbound K Street to northbound Connecticut Avenue between 7:00 AM and 7:00 PM.

Alternative D is recommended because it reduces travel times for east-west buses, increases person throughput at critical locations in the corridor, does not result in significant worsening of congestion for general traffic, and helps reduce transit operating cost. Alternative D is also the best performer with respect to transit system clarity, transit ridership impacts, transit reliability and pedestrian safety.